THE

ONTARIO WATER RESOURCES

COMMISSION

WATER POLLUTION SURVEY

of the

COMMUNITY OF ST. PIE X (McMANNSVILLE)

DISTRICT OF COCHRANE

1966

REPORT

on a

WATER POLLUTION SURVEY

of the

COMMUNITY OF ST. PIE X (McMANNSVILLE)

TOWNSHIP OF KENDALL

District of Cochrane

May 1966

DIVISION OF SANITARY ENGINEERING

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R E P O R T

THE ONTARIO WATER RESOURCES COMMISSION

INTRODUCTION

On September 16, 1965 a water pollution survey was conducted in the Community of St. Pie X, which is also referred to as McMannsville. The purpose of the survey was to locate and record all significant sources of water pollution. Such surveys are performed routinely, and upon request, by the Ontario Water Resources Commission as a basis for evaluating all existing and potential sources of pollution. When sources of pollution are found corrective action is requested by the Commission. Where water and/or pollution control works appear desirable or expansions to present facilities are necessary, the Commission has a programme to aid in the construction and financing of these works.

The cordial assistance given by the Porcupine Health Unit and Mr.J.N. Blouin, Clerk of the Town of Hearst, is gratefully acknowledged.

I GENERAL INFORMATION

The Community of St. Pie X is located immediately adjacent to the Town of Hearst in the unorganized Township of Kendall in the District of Cochrane. St. Pie X has an approximate population of 900 people and the area is presently covered by an Order under Section 27 of the Province of Ontario Planning Act.

The townsite lies within a relatively flat terrain in which the soil consists of a heavy clay overburden. Drainage is towards the Mattawishkwia River.

II WATER SUPPLY

The Community of St. Pie X does not have a communal water works. Water for domestic purposes is obtained from individually-owned drilled or dug wells. A sanitary survey performed by the Porcupine Health Unit in 1962 revealed that 25 per cent of the 113 private water systems sampled, were contaminated.

An OWRC preliminary engineering report of March 12, 1964, on the water supply and sewage treatment requirements for the community, presented three possible sources of water supply: a ground-water supply; a surface-water supply from either Johnson Lake or the Mattawishkwia River; or the Town of Hearst water works. It was recommended that the Community of St. Pie X give preference to purchasing water from the Town of Hearst and constructing its own distribution system. To date, no progress has been made in this matter.

III WATER POLLUTION

1. Sanitary Waste Disposal

(a) Existing Conditions

Residences are served by septic-tank systems and outdoor privies. In the 1962 report by the Porcupine Health Unit, it was disclosed that ninety-three (93) of the one hundred and thirty-four

(134) septic-tank systems recorded were malfunctioning and five (5) of the thirty-one (31) privies were unsatisfactory. At the time of the health unit's survey, one hundred and eighty-five (185) dwellings and places of business were inspected of which twenty (20) were vacant.

The majority of the septic-tank systems have effluent discharging into roadside ditches. Many systems are without subsurface tile beds due to the heavy clay soil conditions and congestion of buildings on the lots.

(b) Proposed Water Pollution Control Facilities

In the OWRC report of March 1964, alternative solutions were given to improve sewage disposal. One was that a waste stabilization pond be constructed to treat the sewage from the community exclusively, and the other solution was to construct a lagoon to serve both the Town of Hearst and St. Pie X. It was suggested that the corporation boundary of Hearst be extended to include that portion of the Township of Kendall south of the town and the area of the township north of Hearst which includes the Community of St. Pie X. This suggested annexation was reportedly opposed by both the town and the community.

2. Discussion of Sample Analyses

The laboratory results of the bacteriological examinations and the chemical analyses of samples collected from the watercourses are recorded in the table appended to this report. Descriptions of

the tests and an outline of the OWRC objectives are also included.

Macroscopic inspection of the roadside ditches revealed that wastes characteristic of septic-tank effluent were being discharged to the ditches and ponding of sewage was noted. In one instance, it was observed that raw sewage was being dumped in the ditch.

Samples, collected from the ditches at the time of the investigation, revealed high total coliform counts. Also, the 5-Day BOD was excessive.

IV REFUSE DISPOSAL

No garbage collection service is available. In many cases refuse is dumped in fields or on vacant lots without authorization.

V SUMMARY AND CONCLUSIONS

A water pollution survey of the Community of St. Pie X was made on September 16, 1965.

The community does not have a communal water or sewage works. Sewage is discharged into roadside ditches and a survey performed in 1962 by the Porcupine Health Unit revealed contaminated private water supplies.

The need for providing improved water supply and sewage disposal facilities is clearly demonstrated, and the present conditions warrant early corrective action.

VI RECOMMENDATIONS

It is recommended that:

1. Sewage and water works for the Community of St. Pie X be incorporated into the Town of Hearst schemes as previously recommended in the OWRC report dated March 12, 1964.

2. If agreement cannot be reached to fulfill the above mentioned recommendation, consideration be given to the establishment of a sanitary sewerage system and water works to serve the residents of St. Pie X as soon as possible.

3. Until adequate public water and sewage works are provided, every effort be made to protect the private water supplies from contamination and to eliminate the discharges of polluting material into the ditches.

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Approved by _____
C.E. McIntyre, P.Eng.,
District Engineer,
Div.of Sanitary Engineering.

Prepared by: G.K. Boretski,
Civil Technologist.

APPENDIX

WATER QUALITY AND EFFLUENT OBJECTIVES

The OWRC objectives for all surface waters in the Province of Ontario are as follows:

5-Day BOD	- not greater than 4 ppm
Total Coliform Organisms	- not greater than 2,400 coliforms per 100 ml
Phenolic Equivalents	- average - not greater than 2 ppb
	maximum - not greater than 5 ppb
pH Range	- 6.7 to 8.5

A few pertinent maximum concentration limits of contaminants in storm sewers, sewage treatment plant and industrial waste effluents are listed below. Adequate protection for surface waters, except in certain specific instances influenced by local conditions, should be provided if the following concentrations and pH range are not exceeded.

5-Day BOD	- not greater than 15 ppm
Suspended Solids	- not greater than 15 ppm
Phenolic Equivalents	- not greater than 20 ppm
Ether Solubles (oil)	- not greater than 15 ppm
pH Range	- 5.5 to 10.6

GLOSSARY OF TERMS

Bacteriological Examinations - The Most Probable Number Technique is used by the Ontario Department of Health to obtain an approximation of the actual number of coliform organisms present. These organisms are the normal inhabitants of the intestines of man and other warm blooded animals. They are always present in large numbers in sewage and are, in general, relatively few in number in

other stream pollutants.

Biochemical Oxygen Demand (BOD) - The biochemical oxygen demand test indicates the amount of oxygen required for stablization of the decomposable organic matter found in sewage, sewage effluent, polluted waters, or industrial wastes, by aerobic biochemical action. The time and temperature used five (5) days and 20°C, respectively.

Solids - The analyses for solids include tests for total, suspended, and dissolved solids. The total solids is a meausre of the solids in solution and in suspension. Suspended solids indicate the measure of undissolved solids of organic or inorganic nature whereas the dissolved solids are a measure of those solids in solution.

TABLE I

Sampling Point No.	Location	Date	5-Day BOD (ppm)	Solids Total (ppm)	Solids Susp. (ppm)	Solids Diss. (ppm)	MPN* Total Coliform Organisms per 100 c.c.	E.coli per 100 c.c.
MW-36.2 D-1	Open Ditch south side of Hwy. #11.	Sept.16/65	23.0	532	9	523	4,600,000	240,000
MW-36.2 D-2	Drainage Ditch north of CN tracks.	Sept.16/65	0.9	386	1	385	23	0
MW-36.2 D-3	Open Ditch at junction of Hwy's. #11 and #583.	Sept.16/65	3.4	536	12	524	930,000	9,300
MW-36.2 D-4	Open Ditch south west corner of Queen Street and Hwy. #583.	Sept.16/65	30.0	508	13	495	750,000	24,000
MW-36.2 D-5	Open Ditch north of Queen Street.	Sept.16/65	16.0	558	20	538	4,600,000	0
MW-36.2 D-6	Open Ditch east of Second Avenue.	Sept.16/65	21.0	558	16	542	930,000	23
MW-36.2 D-7	Open Ditch north side of First Avenue.	Sept.16/65	22.0	710	33	677	4,600,000	240
MW-36.2 D-8	Open Ditch east side of Elizabeth Street.	Sept.16/65	46.0	816	181	535	150,000	23

TABLE I (CONT'D)

Sampling Point No.	Location	Date	5-Day BOD (ppm)	Solids Total (ppm)	Solids Susp. (ppm)	Solids Diss. (ppm)	MPN* Total Coliform Organisms per 100 c.c.	MPN* E.coli per 100 c.c.
MW-36.2 D-9	Open Ditch south of Town Boundary Road.	Sept.16/65	4.4	296	3	293	2,400	0
MW-36.2 D-10	Open Ditch north of Town Boundary Road.	Sept.16/65	1.2	244	13	231	43	0
MW-36.2 D-11	Open Ditch north of Town Boundary Road.	Sept.16/65	11.0	206	26	180	1,500,000	2,400
MW-36.2 D-12	Open Ditch north of Town Boundary Road.	Sept.16/65	2.4	2834	5	2829	4,600,000	240
MW-36.2 D-13	Open Ditch north of Town Boundary Road.	Sept.16/65	2.0	220	2	218	11	0
MW-37.0 D-1	Drainage Ditch at Hwy. #11.	Sept.16/65	2.0	280	8	272	75	0
MW-37.0 D-2	Drainage Ditch upstream from Hwy. #11.	Sept.16/65	1.7	248	2	246	750	0

TABLE I (CONT'D)

Sampling Point No.	Location	Date	5-Day BOD (ppm)	Solids Total (ppm)	Solids Susp. (ppm)	Solids Diss. (ppm)	MPN* Total Coliform Organisms per 100 c.c.	E.coli per 100 c.c.
MW-37.0 D-3	Open Ditch south of Town Boundary Road.	Sept.16/65	1.5	200	1	199	23	0
MW-37.0 D-4	Open Ditch south of Town Boundary Road.	Sept.16/65	8.0	316	2	314	240	0

* Bacteriological examinations performed by the Ontario Department of Health Regional Laboratory in Timmins, Ontario.